

WHAT IS CLAIMED IS:

S. A. A.
5 1. A method for generating a tree-style graphical representation that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed as a graphical user interface on a screen of a visual display unit, said method comprising:

acquiring a first specification that describes a set of hierarchical interrelationships among said set of entities;

10 acquiring a second specification that describes a set of non-hierarchical interrelationships among said set of entities;

constructing said tree-style graphical representation depicting both said set of hierarchical interrelationships and said set of non-hierarchical interrelationships among said set of entities; and

15 displaying said tree-style graphical representation to produce said graphical user interface on said screen of said visual display unit.

2. The method according to claim 1, wherein said acquiring a first specification includes at least one of:

20 extracting said first specification from a digital file stored on a computer-readable medium; and

obtaining said first specification from an interactive graphical user interface.

25 3. The method according to claim 1, wherein said acquiring a second specification includes at least one of:

extracting said second specification from a digital file stored on a computer-readable medium; and

obtaining said second specification from an interactive graphical user interface.

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4. The method according to claim 1, wherein said constructing further comprises:

forming an initial tree-style graphical representation that depicts said set of hierarchical interrelationships among said set of entities; and

10 incorporating said set of non-hierarchical interrelationships into said initial tree-style graphical representation, by depicting said set of non-hierarchical interrelationships without altering said set of hierarchical interrelationships depicted in said initial tree-style graphical representation, to produce said tree-style graphical representation.

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5. The method according to claim 4, wherein said forming includes graphically depicting a hierarchical interrelationship in such a manner that the child entity in said hierarchical interrelationship appears left-indented from where the parent entity in said hierarchical interrelationship appears.

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6. The method according to claim 4, wherein said incorporating by depicting includes graphically displaying a connection between any two entities involved in any one of said set of non-hierarchical interrelationships on the right side of where said two entities appear in said initial tree-style graphical representation.

25 7. A method for modifying a tree-style graphical representation that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities

and that is displayed as a modified graphical user interface on a screen of a visual display unit, said method comprises at least one of:

adding a new entity to the depiction of said tree-style graphical representation; and

5 deleting a depicted entity from the depiction of said tree-style graphical representation.

8. The method according to claim 7, wherein said adding further comprises:

defining said new entity;

10 specifying a position in said tree-style graphical representation where said new entity can be inserted;

modifying said tree-style graphical representation to incorporate said new entity at said position; and

15 displaying said tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit.

9. The method according to claim 7, wherein said deleting further comprises:

selecting said depicted entity from said tree-style graphical representation;

20 identifying any hierarchical interrelationship and any non-hierarchical interrelationship, associated with said depicted entity;

modifying said tree-style graphical representation to incorporate the deletion of said depicted entity and the removal of said any hierarchical interrelationship and any non-hierarchical interrelationship, identified by said identifying; and

displaying said tree-style graphical representation, modified by said
modifying to produce said modified graphical user interface on said screen of said display
unit.

5 10. A method for modifying a tree-style graphical representation that depicts
simultaneously hierarchical and non-hierarchical interrelationships among a set of entities
and that is displayed as a graphical user interface on a screen of a visual display unit, said
method comprises at least one of:

10 adding a new hierarchical interrelationship to the depiction of said tree-style
graphical representation;

 deleting a depicted hierarchical interrelationship from the depiction of said
tree-style graphical representation;

 updating a depicted hierarchical interrelationship in the depiction of said
tree-style graphical representation.

15 11. The method according to claim 10, wherein said adding further comprises:
 obtaining a specification that describes said new hierarchical
interrelationship;

20 modifying said tree-style graphical representation according to said
specification; and

 displaying said tree-style graphical representation, modified by said
modifying to produce said modified graphical user interface on said screen of said display
unit.

25 12. The method according to claim 10, wherein said deleting further comprises:

selecting said depicted hierarchical interrelationship from said tree-style graphical representation;

modifying said tree-style graphical representation so that said depicted hierarchical interrelationship is removed; and

5 displaying said tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit.

13. The method according to claim 10, wherein said updating further comprises:

10 selecting said depicted hierarchical interrelationship from said tree-style graphical representation;

revising the specification associated with said depicted hierarchical interrelationship to produce a modified hierarchical interrelationship; and

15 modifying said tree-style graphical representation to replace said depicted hierarchical interrelationship by said modified hierarchical interrelationship; and

displaying said tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit.

20 14. A method for modifying a tree-style graphical representation that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed as a modified graphical user interface on a screen of a visual display unit, said method comprises at least one of:

25 adding a new non-hierarchical interrelationship to the depiction of said tree-style graphical representation;

deleting a depicted non-hierarchical interrelationship from the depiction of said tree-style graphical representation;

updating a depicted non-hierarchical interrelationship in the depiction of said tree-style graphical representation.

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15. The method according to claim 14, wherein said adding further comprises:

obtaining a specification that describes said new non-hierarchical interrelationship;

10 modifying said tree-style graphical representation according to said specification; and

displaying said tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit.

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16. The method according to claim 14, wherein said deleting further comprises:

selecting said depicted non-hierarchical interrelationship from said tree-style graphical representation;

modifying said tree-style graphical representation so that said depicted non-hierarchical interrelationship is removed; and

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displaying said tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit.

17. The method according to claim 14, wherein said updating further comprises:

selecting said depicted non-hierarchical interrelationship from said tree-style graphical representation;

revising the specification associated with said depicted non-hierarchical interrelationship to produce a modified non-hierarchical interrelationship;

5 modifying said tree-style graphical representation to replace said depicted non-hierarchical interrelationship by said modified non-hierarchical interrelationship; and

displaying said tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit.

10 18. Obtaining as in any one of claim 2 and claim 11, wherein said obtaining further comprises:

displaying various entities from said set of entities in said graphical user interface;

15 selecting a parent entity from said various entities within said interactive graphical interface;

selecting a child entity from said various entities within said interactive graphical interface; and

20 defining a hierarchical interrelationship between said parent entity and said child entity.

19. Obtaining as in any one of claim 3 and claim 15, wherein said obtaining further comprises:

displaying various entities from said set of entities in said graphical user interface;

25 selecting a first entity from said various entities;

selecting a second entity from said various entities; and
defining a non-hierarchical interrelationship between said first entity and
said second entity.

5 20. A computer-readable medium encoded with a program for generating a
tree-style graphical representation that depicts simultaneously hierarchical and non-
hierarchical interrelationships among a set of entities and that is displayed as a graphical
user interface on a screen of a visual display unit, said program comprising:

10 acquiring a first specification that describes a set of hierarchical
interrelationships among said set of entities;

 acquiring a second specification that describes a set of non-hierarchical
interrelationships among said set of entities;

15 constructing said tree-style graphical representation depicting both said set
of hierarchical interrelationships and said set of non-hierarchical interrelationships among
said set of entities; and

 displaying said tree-style graphical representation to produce said graphical
user interface on said screen of said visual display unit.

20 21. A computer-readable medium encoded with a program for modifying a
tree-style graphical representation that depicts simultaneously hierarchical and non-
hierarchical interrelationships among a set of entities and that is displayed as a modified
graphical user interface on a screen of a visual display unit, said program comprising at
least one of:

 adding another entity to the depiction of said tree-style graphical
representation; and

deleting a depicted entity from the depiction of said tree-style graphical representation.

22. A computer-readable medium encoded with a program for modifying a tree-style graphical representation that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed as a modified graphical user interface on a screen of a visual display unit, said program comprising at least one of:

adding another hierarchical interrelationship to the depiction of said tree-style graphical representation;

deleting a depicted hierarchical interrelationship from the depiction of said tree-style graphical representation;

updating a depicted hierarchical interrelationship in the depiction of said tree-style graphical representation.

23. A computer-readable medium encoded with a program for modifying a tree-style graphical representation that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed as a modified graphical user interface on a screen of a visual display unit, said program comprising at least one of:

adding another non-hierarchical interrelationship to the depiction of said tree-style graphical representation;

deleting a depicted non-hierarchical interrelationship from the depiction of said tree-style graphical representation;

updating a depicted non-hierarchical interrelationship in the depiction of said tree-style graphical representation.

24. A system for generating a tree-style graphical representation that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed as a graphical user interface, said system comprising:

an acquisition mechanism to acquire specifications for said hierarchical and non-hierarchical interrelationships among said set of entities;

a storage mechanism to store said specifications for said hierarchical and non-hierarchical interrelationships, acquired by said acquisition mechanism;

a tree-style graphical representation generation unit to generate said tree-style graphical representation based on said hierarchical and non-hierarchical interrelationships; and

a display unit on which said tree-style graphical representation is displayed to produce said graphical user interface.

25. A system for acquiring the information about a set of entities and at least one specification describing the interrelationships among said set of entities, said system comprising:

a computer-readable medium on which at least one digital file is stored;

an extractor to extract, from said at least one digital file, said information about said set of entities and said at least one specification about said interrelationships among said set of entities;

an interactive graphical user interface;

an interactive acquisition unit to interactively acquire, via said interactive graphical user interface, , said information about said set of entities and said at least one specification about said interrelationships among said set of entities; and

a storage mechanism to store the information about said set of entities and said at least one specification, acquired by at least one of any said extractor and said interactive acquisition unit.

26. A system for constructing a tree-style graphical representation that depicts simultaneously hierarchical interrelationship and non-hierarchical interrelationships among a set of entities and that is displayed as a graphical user interface on a screen of a display unit, said system comprising:

a storage mechanism to store a first specification describing a set of hierarchical interrelationships and a second specification describing a set of non-hierarchical interrelationships among a set of entities;

an initial tree-style graphical representation generator to generate an initial tree-style graphical representation based on said first specification retrieved from said storage mechanism;

an augmented tree-style graphical representation generator to generate said tree-style graphical representation based on said initial tree-style graphical representation by depicting non-hierarchical interrelationships among said set of entities in said initial tree-style graphical representation according to said second specification retrieved from said storage mechanism; and

a display unit to display said tree-style graphical representation generated by said augmented tree-style graphical representation generator.